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Geophysical Archive Data Delivery System

User Guide

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Australian Government

Geophysical Archive Data Delivery System

This system provides magnetic, radiometric, gravity and digital elevation data from Australian National, State and Territory Government geophysical data archives.



Australian Government



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"Knowing where things are, and why, is essential to rational decision making"
~ Jack Dangermond, Environmental Systems Research Institute (ESRI)


Perform a Spatial Query

In order to return specific set of datasets, you must first perform a spatial query. The following set of instructions will guide you through to steps to do so. To perform a Spatial you need to define a spatial boundary and at least one primary filter.

1 Create a spatial search boundary:

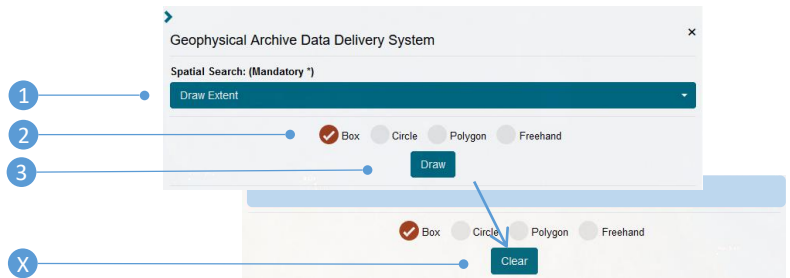
Different ways to create a spatial search boundary:

-  Manually draw extent within the mapping window
-  Manually define a spatial boundary with a WGS entry.
-  Import a Local shape, KML or JSON file containing a spatial boundary.
-  Select an Australian State with a predefined boundary.
-  Select a predefined Map sheet.

 **Notice:** A spatial boundary must be defined to return a dataset

Draw Extent

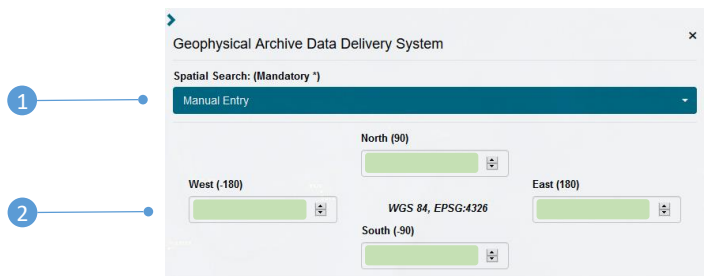
- 1 Click Spatial Search drop down and select 'Draw Extent'
- 2 Select drawing type
- 3 Click 'Draw' and commence drawing within the mapping window.
- X The extent can be cleared by clicking 'Clear' once displayed.



Notice: You can't draw a box around the whole country to receive a national grid or image. To download a national grid or image click on the layers option at the top left of the screen and select GADDS.

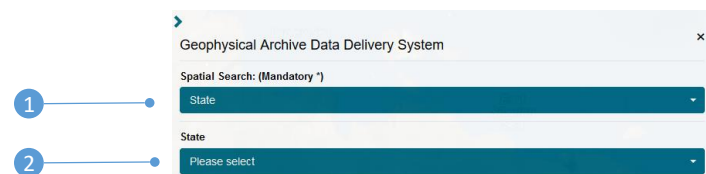
WSG Manual Entry

- 1 Click Spatial Search drop down and select 'Manual Entry'
- 2 Enter in a WSG coordinate value in each field.



State

- 1 Click Spatial Search drop down and select 'State'
- 2 Pick from a state from within the drop down list



✓ Upload Boundary

- 1 Click Spatial Search drop down and select 'Load File'
- 2 Click 'Choose File'



Tip: Boundary files can be in the file format of Local shape, KML or JSON file.



Notice: If you would like to upload a shape polygon you need to zip the .shp, .shx and .prj files into a .zip format. This .zip file is then selected to be uploaded.

✓ Map Sheets

- 1 Click Spatial Search drop down and select 'Map Search'
- 2 Pick a Map sheet from within the drop down list



2 Define a Primary filter

- 1 Select a Geophysical Method filter. And/Or
- 2 Select a Dataset type. And/Or
- 3 Select a National Compilation.



Tip: At least one Primary filter is required. Within each filter type, you have the ability to select one or many options.



Notice: At least one primary filter must be selected to run a spatial query.

- 1 Pick from the desired primary filters from one or many of the drop down lists



Geophysical Method

- Elevation
- Gravity
- Magnetic
- Radiometric

Dataset Type

- Grid
- Point
- Line

National Compilations

- National Compilations Only
- Individual Surveys Only
- Individual Surveys & National Compilations

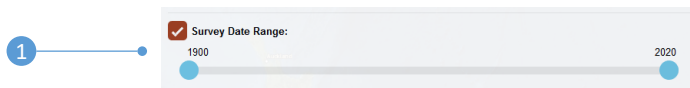


Tip: You cannot choose entire dataset for National Compilations when searching a smaller region (the selection box is greyed out). This decision was made to prevent accidentally selecting a national dataset when only interested in a small area.

If you are interested in the national dataset, navigate to the layers function in the top left of the screen, and apply the required layer.

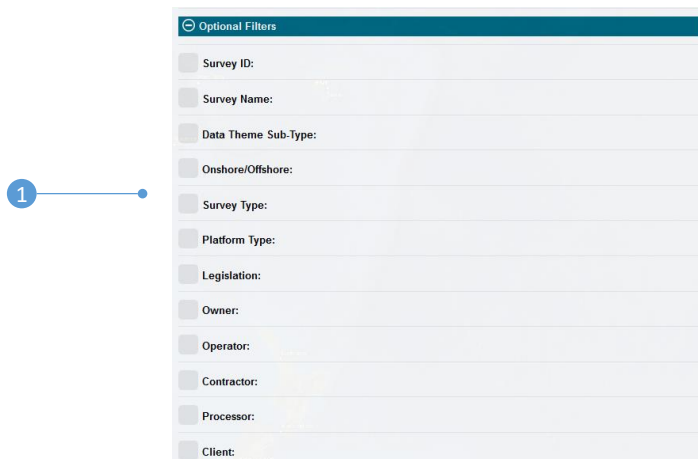
3 Define a Survey Date Range

- 1 Select the desired date range by dragging the sliders left and right. Year range can be selected between 1900 and the present year.



4 Define one or more optional filters

- 1 Check one or many Optional Filter/s and select from the options within the presented drop down lists, alternatively enter a value if presented with a blank field.



✓ Data Theme Sub-Type

The optional filter data theme sub-type lists all variables available for each geophysical method these variables include different colour tables for images or enhancements, such as 1VD. The below data table outlines each dataset type and its unit of measure (UOM).

Type	Dataset	UOM
elevation	ground elevation geoid	m
elevation	ground elevation geoid image	
elevation	ground elevation ellipsoid	m
elevation	ground elevation ellipsoid image	
elevation	Ausdrappe elevation geoid	m
elevation	Ausdrappe elevation geoid image	
elevation	Ausdrappe elevation ellipsoid	m
elevation	Ausdrappe elevation ellipsoid image	
elevation	elevation line data	
gravity	infinite slab Bouguer anomaly	um/s ²
gravity	infinite slab Bouguer anomaly 1VD	Eo
gravity	complete infinite slab Bouguer anomaly	um/s ²
gravity	complete infinite slab Bouguer anomaly 1VD	Eo
gravity	spherical cap Bouguer anomaly	um/s ²
gravity	spherical cap Bouguer anomaly 1VD	Eo
gravity	complete spherical cap Bouguer anomaly	um/s ²
gravity	complete spherical cap Bouguer anomaly image	
gravity	complete spherical cap Bouguer anomaly 05VD	Eo
gravity	complete spherical cap Bouguer anomaly 05VD image	
gravity	complete spherical cap Bouguer anomaly 1VD	Eo
gravity	complete spherical cap Bouguer anomaly 1VD image	
gravity	complete spherical cap Bouguer anomaly tilt	Eo
gravity	complete spherical cap Bouguer anomaly tilt image	

Continued...

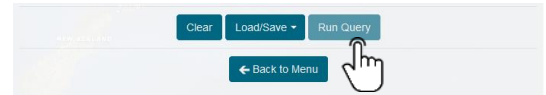
 Data Theme Sub-Type

Type	Dataset	UOM
gravity	isostatic residual anomaly	um/s ²
gravity	optimised isostatic residual anomaly	um/s ²
gravity	de-trended global isostatic residual anomaly	um/s ²
gravity	de-trended global isostatic residual anomaly image	
gravity	de-trended global isostatic residual anomaly 05VD	Eo
gravity	de-trended global isostatic residual anomaly 05VD image	
gravity	isostatic residual anomaly 1VD	Eo
gravity	de-trended global isostatic residual anomaly 1VD	Eo
gravity	de-trended global isostatic residual anomaly 1VD image	
gravity	de-trended global isostatic residual anomaly tilt	um/s ²
gravity	de-trended global isostatic residual anomaly tilt image	
gravity	free air anomaly	um/s ²
gravity	free air anomaly 1VD	um/s ²
gravity	free air offshore infinite slab Bouguer anomaly onshore	um/s ²
gravity	free air offshore spherical cap Bouguer anomaly onshore	um/s ²
gravity	free air offshore spherical cap Bouguer anomaly onshore 1VD	Eo
gravity	gravity line data	
gravity	gravity point data	
magnetic	TMI (total magnetic intensity)	nT
magnetic	TMI pseudocolour image	
magnetic	TMI greyscale image	
magnetic	TMI 1VD	nT/m
magnetic	TMI 1VD image	
magnetic	TMI 2VD	nT/m ²
magnetic	TMI RTP (reduced to pole)	nT
magnetic	TMI RTP pseudocolour image	
magnetic	TMI RTP greyscale image	
magnetic	TMI RTP 05VD	nT/m
magnetic	TMI RTP 05VD pseudocolour image	
magnetic	TMI RTP 1VD	nT/m
magnetic	TMI RTP 1VD pseudocolour image	
magnetic	TMI RTP 1VD greyscale image	
magnetic	TMI RTP AS	nT/m
magnetic	TMI RTP AS pseudocolour image	
magnetic	TMI RTP Enhanced	nT
magnetic	TMI RTP Enhanced pseudocolour image	
magnetic	TMI RTP Upward Continued	nT
magnetic	TMI RTP Upward Continued pseudocolour image	
magnetic	magnetic line data	
radiometric	TC window countrate	counts/s
radiometric	K window countrate	counts/s
radiometric	U window countrate	counts/s
radiometric	Th window countrate	counts/s
radiometric	dose rate - terrestrial	nGy/hr
radiometric	dose rate - total	nGy/hr
radiometric	dose rate - total no nasvd	nGy/hr
radiometric	dose rate - total pseudocolour image	
radiometric	K equivalent ground concentration	%
radiometric	K equivalent ground concentration no nasvd	%
radiometric	K equivalent ground concentration pseudocolour image	
radiometric	U equivalent ground concentration	ppm
radiometric	U equivalent ground concentration no nasvd	ppm
radiometric	U equivalent ground concentration pseudocolour image	
radiometric	Th equivalent ground concentration	ppm
radiometric	Th equivalent ground concentration no nasvd	ppm
radiometric	Th equivalent ground concentration pseudocolour image	
radiometric	Th/K ratio	
radiometric	U/K ratio	
radiometric	U/Th ratio	
radiometric	U2/Th ratio	
radiometric	K-Th-U ternary colour image	
radiometric	K-Th-U-TC window countrate	counts
radiometric	radiometric line data	

Run Spatial Query

Once an Area's of Interest, filters, or date ranges have been defined, you have the ability to remove these values and regions by using the clear function.

- 1 Click the function 'Run Query'



Tip: If you get no data sets returned double check your filters to make sure your request is reasonable (i.e. you are not going to get anything requesting bouguer anomaly magnetic data)

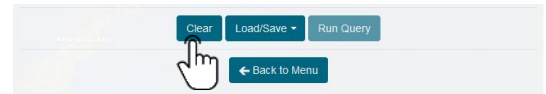


A Spatial boundary and at least one Primary filter must be defined to run a query.

Clear Spatial Query

Once an Area's of Interest, filters, or date ranges have been defined, you have the ability to remove these values and regions by using the clear function.

- 1 Click the function 'Clear'



Notice: By clearing the current query, you will remove all defined selections or inputs. You will not be able to revert back once this action is completed.

Load a Spatial Query

Use this function to load a previously saved query into GADDS.

- 1 Click the function 'Load/Save'
- 2 Select 'Load'



Notice: The loaded query will be displayed. The accepted format will be JSON based off a previously saved query.

Save a Spatial Query

This function is to be used to save a version of the spatial query you have defined to be used at a later date.

- 1 Click the function 'Load/Save'
- 2 Select 'Save'



Notice: The locally saved query will hold the information required to duplicate this query at a later date. This can be done by loading a query.

Download a spatial query dataset

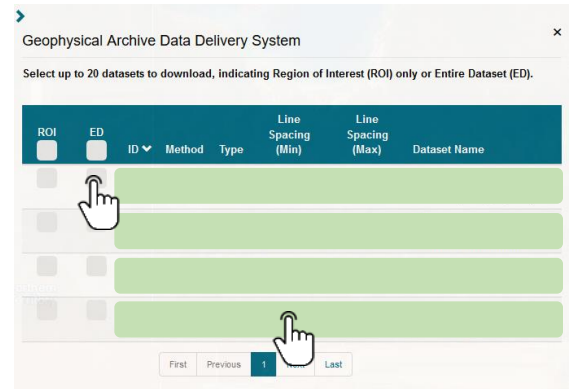
After performing a spatial search, the Geophysical Archive Data Delivery system will allow you to download any returned datasets within this spatial search.


1 Select required dataset/s


- 1 Select either an ROI or ED for each required dataset by clicking on the checkboxes adjacent to dataset ID.

ROI – Region of Interest
ED - Entire Dataset

- X Click on the dataset text to display metadata



 **Tip:** You have the option of selecting up to 20 datasets, each with either a ROI or ED.

 **Tip:** You can display the metadata of the data set by clicking on the dataset text.

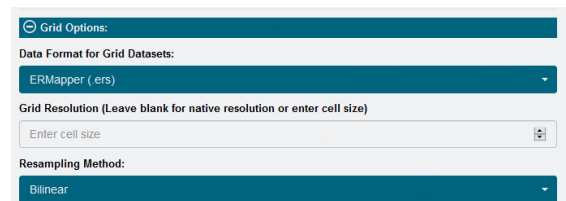
2 Select gridding options

- 1 Select data format type from the drop down menu. ERMapper and GeoTiff are supported.

- 2 Enter the desired grid resolution.

- 3 Select a resampling method.

- Bilinear
- Cubic
- Cubic Spline
- Lanczos
- Average
- Mode
- Maximum
- Minimum
- Median
- First Quartile
- Third Quartile



3 Select required Point and line Data format

1 Select the required data format for Line Datasets



1 Select the required data format for Point Datasets



- ASEG-GDF2
- NETCDF

Point and Line Options

Data Format for Line Datasets:
ASEG-GDF2

Data Format for Point Datasets:
ASEG-GDF2

4 Select a projection type

1 Click Projection drop down and select required type.



- EPSG:3577 - GDA94 / Australian Albers
- EPSG:4283 - GDA94
- EPSG:4236 - WGS84
- EPSG:28348 - GDA94 / MGA Zone 48
- EPSG:28349 - GDA94 / MGA Zone 49
- EPSG:28350 - GDA94 / MGA Zone 50
- EPSG:28351 - GDA94 / MGA Zone 51
- EPSG:28352 - GDA94 / MGA Zone 52
- EPSG:28353 - GDA94 / MGA Zone 53
- EPSG:28354 - GDA94 / MGA Zone 54
- EPSG:28355 - GDA94 / MGA Zone 55
- EPSG:28356 - GDA94 / MGA Zone 56
- EPSG:28357 - GDA94 / MGA Zone 57
- EPSG:28358 - GDA94 / MGA Zone 58

General Options


Projection:
EPSG:4283 - GDA94

5 Enter your email address

1 Enter the email address you would like the dataset to be distributed to.



Email:
e.g. name@company.com

 **Notice:** An email address is required to process the request.

6 Submit Job

1 Select 'Submit Job'



Clear Load/Save Submit Job

← Refine Criteria

After submitting the defined spatial query job, the designated email recipient will receive a link to download the dataset once the job is processed. The download link will remain active for two days.

Field name definitions

For magnetic data these fields are listed and defined in the following table:

Field Name	Definition
altitudeMean	Nominal survey altitude in metres above sea level
bearing	Nominal line or tie bearing in degrees (0-359) measured east of true north
dateCode	Date line or tie was acquired - yyyymmdd
FID	Fiducial at sample in data record
fidFactor	Fiducial size in seconds (Factor to convert fiducial increment into seconds).
flight	Flight number for line or tie
groundClearance	Nominal survey altitude in metres above ground level
latitude	Latitude in degrees
LINE	Unique line or tie number
longitude	Longitude in degrees
microlevelled	As for residual and also microlevelled
residual	Levelled total magnetic intensity - IGRF + 5000nT
survey	Unique survey number identification
timeOfDay	Time of day at fiducial zero in seconds
gridflag	Gridding flag 1=ignore, 0=use. Indicates whether the data point was used in grid generation

For radiometric data these fields are listed and defined in the following table:

Field Name	Definition
altitude	Altitude in metres above ground level of survey aircraft
altitudeMean	Nominal survey altitude in metres above sea level
bearing	Nominal line or tie bearing in degrees (0-359) measured east of true north
dateCode	Date line or tie was acquired - yyyymmdd
FID	Fiducial at sample in data record
fidFactor	Fiducial size in seconds (Factor to convert fiducial increment into seconds).
flight	Flight number for line or tie
groundClearance	Nominal survey altitude in metres above ground level
latitude	Latitude in degrees
LINE	Unique line or tie number
longitude	Longitude in degrees
potassium	Potassium (counts/sec OR pctK)
survey	Unique survey number identification
thorium	Thorium (counts/sec OR ppmTh)
timeOfDay	Time of day at fiducial zero in seconds
totalcount	Total count (counts/sec OR nanoGrays/hour)
uranium	Uranium (counts/sec OR ppmU)

Field name definitions

For **elevation** data these fields are listed and defined in the following table:

Field Name	Definition
altitudeMean	Nominal survey altitude in metres above sea level
bearing	Nominal line or tie bearing in degrees (0-359) measured east of true north
dateCode	Date line or tie was acquired - yyyyymmdd
FID	Fiducial at sample in data record
fidFactor	Fiducial size in seconds (Factor to convert fiducial increment into seconds).
flight	Flight number for line or tie
ground	Ground elevation in metres above sea level
groundClearance	Nominal survey altitude in metres above ground level
latitude	Latitude in degrees
LINE	Unique line or tie number
longitude	Longitude in degrees
plane	Aircraft elevation in metres above ellipsoid
survey	Unique survey number identification
timeOfDay	Time of day at fiducial zero in seconds

Field name definitions

For **gravity** data these fields are listed and defined in the following table:

Field Name	Definition
project	Survey number unique to each survey
obsno	Oracle database generated unique number
stationno	Station number (includes project number)
stationname	Name of station
stationtype	Type of station eg. absolute, base, control, ground, helicopter etc.
dlong	Longitude
dlat	Latitude (negative) for the southern hemisphere
posunits	Position units (degrees, decimal degrees)
acc_loc	Estimate of accuracy of the position, in metres
datum	Position datum
spheroid	Spheroid used defined by the datum
posmethod	Method used to position the station eg. digitised from map, GPS, etc.
elevation	Elevation of ground at the station (metres above sea level)
elevunits	Units of the elevation
acc_ht	Estimate of accuracy of the elevation, in metres
elevdatum	Elevation datum
elevmethod	Method used to define elevation eg. barometer, map, GPS, etc.
elevtype	Elevation description eg. land, marine, underground etc.
obsdate	Date observation was made
countryid	Country observation was made in eg. Aus., PNG etc.
grav	Observed gravity value
gravunits	Units of the observed gravity
acc_gu	Estimate of the accuracy of the observed gravity
gravidatum	Observed gravity datum
caldate	Date gravity data were processed
gravmethod	Gravity meter used eg. LaCoste-Romberg, Scintrex etc.
gmeterid	Gravity meter serial number
height	Height of the gravity meter at the observation point
heighterror	Estimate of the accuracy of the meter height
heightmethod	Method used to obtain the height of the meter
tc	Terrain correction
tcerror	Terrain correction accuracy estimate
tcmethod	Method used to calculate the terrain correction eg. Hammer hand, Intrepid software etc.
tcdensity	Density used in the terrain correction
confid	Confidentiality status of the station eg. open or embargoed
reliab	Estimate of the overall reliability of the reading (0 = unreliable, 7 = high reliability)
status	Status of the station (original or active)
comments	Comments made when observing the station
parent	Shows either '-1' for the original version of the station that has been converted, or the obsno of the station from which it has been converted
freeair	Free Air Anomaly value
bouguer	Bouguer Anomaly value at 2.67 tonne/cubic metre

Field name definitions

For **airborne gravity** data these fields are listed and defined in the following table:

Field Name	Definition
Proj	Project Number
Flt	Flight Number
Line	Line Number
Fid	Fiducial
Date	Date (yyyymmdd)
Brg	Bearing (degrees East of North)
Long	Final Longitude (degrees, GDA94)
Lat	Final Latitude (degrees, GDA94)
LatRad	Final Latitude (radians, GDA94)
mga53E	Final Easting (metres, GDA94, MGA53)
mga53N	Final Northing (metres, GDA94, MGA53)
GPSht	GPS Height above WGS84 Ellipsoid (metres)
GPSTime	GPS time (seconds since start of day)
CSats	Coarse Channel Saturations (1=saturation, 0=no saturation)
FSats	Fine Channel Saturations (1=saturation, 0=no saturation)
RawFA???	Raw Relative Free Air Anomaly (Unlevelled). WGS84, Helmert System. Units - micrometres/sec/sec** (gravity units)
TieLvAdj	Tie Line Levelling Adjustment. Units - micrometres/sec/sec (gravity units)
TieLvFA???	Tie Line Levelled Relative Free Air Anomaly. WGS84, Helmert System. Units - micrometres/sec/sec (gravity units)
NoiseAdj	Noise Adjustment. Units - micrometres/sec/sec (gravity units)
RelFA???	Final Relative Free Air Anomaly. WGS84, Helmert System. Units - micrometres/sec/sec (gravity units)
DCHelmert	DC Adjustment to Absolute Gravity. WGS84, Helmert System. Units - micrometres/sec/sec (gravity units)
AbsFA???	Absolute Free Air Anomaly. WGS84, Helmert System. Units - micrometres/sec/sec (gravity units)
Terrain	Terrain height (metres) (AHD71)
NValue	N-Value AusGeoid98 (metres)
AHD71Ht	Height above Geoid (metres) (AHD71)
ObsFilt	Observed Gravity - Filtered height term (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Obs	Observed Gravity - unfiltered height term (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
FA???	Final Absolute Free Air Anomaly (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
NormBCorrFilt	Normalised Bouguer Correction, filtered to match gravity (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
BullardCorrFilt	Bullard (Earth Curvature) Correction, filtered to match gravity (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
B???	Bouguer Correction, dens=2.54 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Corr254	Bouguer Correction, dens=2.54 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
B???	Bouguer Correction, dens=2.67 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Corr267	Bouguer Correction, dens=2.67 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
NormTerr???	Normalised Terrain Correction, filtered to match gravity (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
CorrFilt	Terrain Correction, dens=2.54 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Terr???	Terrain Correction, dens=2.54 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Corr254	Terrain Correction, dens=2.54 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Terr???	Terrain Correction, dens=2.67 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
Corr267	Terrain Correction, dens=2.67 (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
BA???	Final Absolute Simple Bouguer Anomaly (dens=2.54) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
sim254	Final Absolute Simple Bouguer Anomaly (dens=2.54) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
BA???	Final Absolute Simple Bouguer Anomaly (dens=2.67) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
sim267	Final Absolute Simple Bouguer Anomaly (dens=2.67) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
BA???	Final Absolute Complete Bouguer Anomaly (dens=2.54) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
com254	Final Absolute Complete Bouguer Anomaly (dens=2.54) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
BA???	Final Absolute Complete Bouguer Anomaly (dens=2.67) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
com267	Final Absolute Complete Bouguer Anomaly (dens=2.67) (IGSN71, AHD71). Units - micrometres/sec/sec (gravity units)
???	Filter Length 060, 080, 107 seconds
**	1 micrometre/sec/sec=0.1 mGal